

REMARKS

Claims 22 and 24-43 have been presented for examination and have been rejected under 35 U.S.C. §112 as failing to convey to one skilled in the art that the inventors had possession of the claimed subject matter at the time the application was filed.

The Section 112 rejection of claim 22 is based upon the purported failure to disclose a field oxide layer in a trench that extends above an adjacent structure, specifically the upper surface of a first gate layer. Applicants respectfully request reconsideration of this rejection. Claim 22 states, *inter alia*:

the substantially straight sides [of the field oxide layer in the trench] extending upwardly from the trench... past the upper surface of the substrate above adjacent structures on the upper surface of the substrate,..., the top surface of the field oxide layer being between the level of the upper surface of the substrate and the level of an upper surface of the first gate layer.

Thus, claim 22 requires that the field oxide layer extend upwardly from the trench beyond the substrate but below the upper surface of the first gate layer. The subject matter of claim 22 is shown in Figure 2A-G and is described in the specification in almost the same terminology as specified in claim 22 in the following passage:

[A] field oxide 60 is recessed in step 116 such that the surface of the field oxide 60 is at a level between the level of the upper surface 42 of the first gate layer 40 and the surface 24 of substrate 20. In the exemplary embodiment, the field oxide level is between the upper surface 42 of the first gate layer 40 and the upper surface 32 of the gate oxide layer 30.

This subject matter is most clearly shown in Figure 2G where the Examiner will note that the upper surface of the field oxide layer 60 is between the upper surface of the substrate 20 and the upper surface of the first gate layer 40. As for the limitation in claim 22 of the "adjacent structures" above which the field oxide extends, the upper surface of the field oxide 60 is shown in Figure 2G as being above both the gate oxide layer 30 and a portion of the first gate layer 40.

Applicants are amending claims 26, 28, 30, 32 and 34 in view of the rejections of those claims and the claims dependent thereon. Specifically, claim 26 is being amended to specify that the field oxide in the trench projects beyond the surface of the substrate and “beyond at least some of any adjacent structures on the surface of the substrate.” As shown in Figure 3G, the field oxide 60 projects beyond the gate oxide 30 and a portion of the first gate layer 40. Thus, amended claim 26 is clearly supported by the specification.

Claim 28 is being amended in substantially the same manner as claim 26 and is thus also supported by the specification. Claim 28 also specifies that a gate structure extends from the upper surface of the substrate “by a height at least equal to approximately two times a height that the field oxide extends from the trench beyond the surface of the substrate.” In the exemplary embodiment of Figure 2G, the gate structure 300 extends from the upper surface of the substrate by at least twice the height that the field oxide 60 extends beyond the surface of the substrate 20. Claim 28 is thus clearly supported by the specification.

Like claim 26, claim 30 is being amended to specify that the field oxide extends “above at least some of any adjacent structure on the upper surface of the substrate.” Claim 30 is therefore supported by the specification for the same reason that claim 26 is supported. Claim 30 also specifies that the field oxide extends beyond the surface of the substrate “by a height which is less than or equal to approximately one half of a height of a component formed on the field oxide.” As explained above, Figure 2G shows the field oxide 60 extending beyond the surface of the substrate 20 a distance that is less than half the height of the gate structure 300. Claim 30 is therefore supported by the specification.

Claim 32 is also being amended to specify that the field oxide extends above the surface of the substrate and “above at least some of the gate structure on the upper surface of the substrate.” Again, this gate structure above which the field oxide extends is shown in the example of Figure 2G as being the gate oxide 30 and a portion of the first gate layer 40. Claim 32 also specifies that the field oxide extends “beyond the upper surface of the substrate by a height which is less than or equal to approximately one half of the height of the gate structure formed on the substrate.” This limitation is supported in the exemplary embodiment shown in Figure 2G, which shows the upper surface of the field oxide 60 projecting above the substrate 20 by less than half the height of the gate structure 300.

Finally, claim 34 is also being amended to specify that the sides of the field oxide project from the trench above at least some of an adjacent structure on the upper surface of the substrate. As explained above, Figure 2G shows the field oxide 60 projecting above the gate oxide 30 and a portion of the first gate layer 40. Claim 34 also specifies the field oxide 60 projects above the surface of the substrate "by a height which is small enough to prevent the formation of spacers adjacent the field oxide." The absence of spacers is clearly shown in Figure 2G. Amended claim 34 is thus also clearly supported by the specification.

As explained in response to previous Office Actions, none of the cited references disclose or suggest the dimensional relationships recited in the claims.

Insofar as all of the claims in the application patentably distinguish over the cited references and are supported by the specification, favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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